CONTENTS

VOLUME 95 · NUMBER 1 · JANUARY 1990

1 HECTOR H. VALDIVIA and ROBERTO CORONADO. Internal and external effects of dihydropyridines in the calcium channel of skeletal muscle

29 WILLIAM N. ZAGOTTA and RICHARD W. ALDRICH. Voltage-dependent gating of *Shaker* A-type potassium channels in *Drosophila* muscle

61 JOSEPH R. STIMERS, NORIKAZU SHIGETO, and MELVYN LIEBERMAN. Na/K pump current in aggregates of cultured chick cardiac myocytes

77 JOSEPH R. STIMERS, LESLIE A. LOBAUGH, SHI LIU, NORIKAZU SHIGETO, and MELVYN LIEBERMAN. Intracellular sodium affects ouabain interaction with the Na/K pump in cultured chick cardiac myocytes

97 SERGIO GRINSTEIN and JULIA D. SMITH. Calcium-independent cell volume regulation in human lymphocytes. Inhibition by charybdotoxin

121 JACOB GREEN, DEAN T. YAMAGUCHI, CHARLES R. KLEEMAN, and SHMUEL MUALLEM. Cytosolic pH regulation in osteoblasts. Regulation of anion exchange by intracellular pH and Ca^{2+} ions

147 JUDITH A. HEINY and DE-SHIEN JONG. A nonlinear electrostatic potential change in the T-system of skeletal muscle detected under passive recording conditions using potentiometric dyes

177 ROBERT PAUL MALCHOW, HAOHUA QIAN, HARRIS RIPPS, and JOHN E. DOWLING. Structural and functional properties of two types of horizontal cell in the skate retina

199 INFORMATION FOR AUTHORS

VOLUME 95 · NUMBER 2 · FEBRUARY 1990

205 MICHAEL A. MCCLOSKEY and MICHAEL D. CAHALAN. G protein control of potassium channel activity in a mast cell line

229 RANJAN BATRA and ROBERT B. BARLOW, JR. Efferent control of temporal response properties of the *Limulus* lateral eye

245 CHRISTINA K. AUGUSTINE and FRANCISCO BEZANILLA. Phosphorylation modulates potassium conductance and gating current of perfused giant axons of squid

273 A. LIÉVANO, E. C. VEGA-SAENZDEMIERA, and A. DARSZON. Ca^{2+} channels from the sea urchin sperm plasma membrane

297 MAKOTO MIZUNAMI. Nonlinear signal transmission between second- and third-order neurons of cockroach ocelli

319 STEPHEN P. SOLTOFF, MICHAEL K. MCMILLIAN, EDWARD J. CRAGOE, JR., LEWIS C. CANTLEY, and BARBARA R. TALAMO. Effects of extracellular ATP on ion transport systems and $[Ca^{2+}]_i$ in rat parotid acinar cells. Comparison with the muscarinic agonist carbachol

347 STEVEN R. HAYS and ROBERT J. ALPERN. Basolateral membrane Na^+-independent Cl^-/HCO_3^- exchange in the inner stripe of the outer medullary collecting tubule

369 GUILLERMO A. ALTENBERG and LUIS REUSS. Apical membrane Na^+/H^+ exchange in *Necturus* gallbladder epithelium. Its dependence on extracellular and intracellular pH and on external Na^+ concentration

VOLUME 95 · NUMBER 3 · MARCH 1990

397 GUILLERMO ALVAREZ DE TOLEDO and JULIO M. FERNANDEZ. Compound versus multigranular exocytosis in peritoneal mast cells

411 B. E. SCANLEY, D. A. HANCK, T. CHAY, and H. A. FOZZARD. Kinetic analysis of single sodium channels from canine cardiac Purkinje cells

439 D. A. HANCK, M. F. SHEETS, and H. A. FOZZARD. Gating currents associated with Na channels in canine cardiac Purkinje cells

459 PETER E. R. TATHAM and MANFRED LINDAU. ATP-induced pore formation in the plasma membrane of rat peritoneal mast cells

477 POLLY A. HOFMANN, JOSEPH M. METZGER, MARION L. GREASER, and RICHARD L. MOSS. Effects of partial extraction of light chain 2 on the Ca^{2+} sensitivities of isometric tension, stiffness, and velocity of shortening of skinned skeletal muscle fibers

499 RICHARD P. KLINE, LEONARD ZABLOW, and IRA S. COHEN. Interaction of intracellular ion buffering with transmembrane-coupled ion transport

523 MARY T. LUCERO and PAMELA A. PAPPONE. Membrane responses to norepinephrine in cultured brown fat cells

545 H. HAMM. Regulation by light of cyclic nucleotide-dependent protein kinases and their substrates in frog rod outer segments

VOLUME 95 · NUMBER 4 · APRIL 1990

569 STEVEN A. THOMAS and RICHARD I. HUME. Permeation of both cations and anions through a single class of ATP-activated ion channels in developing chick skeletal muscle

591 MARIA ERECIŃSKA and FIORENZO DAGANI. Relationships between the neuronal sodium/potassium pump and energy metabolism. Effects of K^+, Na^+, and adenosine triphosphate in isolated brain synaptosomes

617 THOMAS E. DECOURSEY. State-dependent inactivation of K^+ currents in rat type II alveolar epithelial cells

647 SANDY I. HELMAN and LYNN M. BAXENDALE. Blocker-related changes of channel density. Analysis of a three-state model for apical Na channels of frog skin

679 JEFFRY B. LANSMAN. Blockade of current through single calcium channels by trivalent lanthanide cations. Effect of ionic radius on the rates of ion entry and exit

697 MINEO YAMAKAWA, DAVID E. HARRIS, FREDRIC S. FAY, and DAVID M. WARSHAW. Mechanical transients of single toad stomach smooth muscle cells. Effects of lowering temperature and extracellular calcium

717 DAVID R. COPENHAGEN, SIMO HEMILÄ, and TOM REUTER. Signal transmission through the dark-adapted retina of the toad (*Bufo marinus*). Gain, convergence, and signal/noise

733 KRISTIAN DONNER, DAVID R. COPENHAGEN, and TOM REUTER. Weber and noise adaptation in the retina of the toad *Bufo marinus*

755 GREG MAGUIRE, PETER LUKASIEWICZ, and FRANK WERBLIN. Synaptic and voltage-gated currents in interplexiform cells of the tiger salamander retina

VOLUME 95 · NUMBER 5 · MAY 1990

773 YOSHINORI MARUNAKA and DOUGLAS C. EATON. Effects of insulin and phosphatase on a Ca^{2+}-dependent Cl^- channel in a distal nephron cell line (A6)

791 YOAV SEGAL and LUIS REUSS. Maxi K^+ channels and their relationship to the apical membrane conductance in *Necturus* gallbladder epithelium

819 REINALDO DIPOLO and LUIS BEAUGÉ. Asymmetrical properties of the Na-Ca exchanger in voltage-clamped, internally dialyzed squid axons under symmetrical ionic conditions

837 IAN A. SILVER and MARIA ERECIŃSKA. Intracellular and extracellular changes of $[Ca^{2+}]$ in hypoxia and ischemia in rat brain in vivo

867 PETER SHRAGER and CHAIM T. RUBINSTEIN. Optical measurement of conduction in single demyelinated axons

891 P. HOCHSTRATE and K. HAMDORF. Microvillar components of light adaptation in blowflies

911 DAVID T. YUE and EDUARDO MARBAN. Permeation in the dihydropyridine-sensitive calcium channel. Multi-ion occupancy but no anomalous mole-fraction effect between Ba^{2+} and Ca^{2+}

941 LAN-BO SHI, D. BROWN, and A. S. VERKMAN. Water, proton, and urea transport in toad bladder endosomes that contain the vasopressin-sensitive water channel

961 C. HAIMANN, L. BERNHEIM, D. BERTRAND, and C. R. BADER. Potassium current activated by intracellular sodium in quail trigeminal ganglion neurons

981 R. H. ASHLEY and A. J. WILLIAMS. Divalent cation activation and inhibition of single calcium release channels from sheep cardiac sarcoplasmic reticulum

1007 TAKASHI KUMAZAWA and KENZO KURIHARA. Large enhancement of canine taste responses to sugars by salts

VOLUME 95 · NUMBER 6 · JUNE 1990

1021 MICHAEL L. JENNINGS and NAYEF AL-ROHIL. Kinetics of activation and inactivation of swelling-stimulated K^+/Cl^- transport. The volume-sensitive parameter is the rate constant for inactivation

1041 PAUL A. SMITH, KRISTER BOKVIST, PER ARKHAMMAR, PER-OLOF BERGGREN, and PATRIK RORSMAN. Delayed rectifying and calcium-activated K^+ channels and their significance for action potential repolarization in mouse pancreatic β-cells

1061 R. L. WHITE, J. E. DOELLER, V. K. VERSELIS, and B. A. WITTENBERG. Gap junctional conductance between pairs of ventricular myocytes is modulated synergistically by H^+ and Ca^{++}

1077 ROBERT D. HARVEY, CRAIG D. CLARK, and JOSEPH R. HUME. Chloride current in mammalian cardiac myocytes. Novel mechanism for autonomic regulation of action potential duration and resting membrane potential

1103 MASAMITSU IINO. Biphasic Ca^{2+} dependence of inositol 1,4,5-triphosphate-induced Ca release in smooth muscle cells of the guinea pig taenia caeci

1123 MARCEL C. G. DANIELS and HENK E. D. J. TER KEURS. Spontaneous contractions in rat cardiac trabeculae. Trigger mechanism and propagation velocity

1139 C. R. FRENCH, P. SAH, K. J. BUCKETT, and P. W. GAGE. A voltage-dependent persistent sodium current in mammalian hippocampal neurons

1159 TAKAMITSU HANAMORI, KAZUHIDE HIROTA, and NOBUSADA ISHIKO. Receptive fields and gustatory responsiveness of frog glossopharyngeal nerve. A single fiber analysis

1183 JULIA E. RAFTOS, BRIAN T. BULLIMAN, and PHILIP W. KUCHEL. Evaluation of an electrochemical model of erythrocyte pH buffering using ^{31}P nuclear magnetic resonance data

1205 AUTHOR INDEX TO VOLUME 95